

## CLAIMS:

1. A circuit arrangement having a sigma-delta converter (2) for converting an analog input signal into a digital output signal, wherein the sigma-delta converter (2) comprises a loop filter (22) having a filter input to which an input line (21) for the input signal is connected and having a filter output, a quantizer (23) having a quantizer input that is connected to the filter output and having a quantizer output to which an output line (24) for the output signal is connected, and a feedback loop (25) to feed the output signal back to the input signal, and the circuit arrangement has a dither-signal line (27) that is suitable for additionally applying to the quantizer input, as a dither signal, a signal that is available in the circuit but is not specifically generated for this purpose.

2. A circuit arrangement as claimed in claim 1, wherein the circuit comprises a second sigma-delta converter (2') having a second output line (24'), and the dither-signal line (27.1) connects the second output line (24') to the quantizer input of the first sigma-delta converter (2).

3. A circuit arrangement as claimed in claim 1, wherein the circuit arrangement comprises a digital-to-analog converter (5), preferably an FIR digital-to-analog converter, and the dither-signal line (27.3) connects an input line of the digital-to-analog converter (5) to the quantizer input of the first sigma-delta converter (2).

4. A circuit arrangement as claimed in any one of the foregoing claims, wherein the circuit arrangement has means (4) for noise shaping that are connected upstream of the dither-signal line (27.3).

5. A circuit arrangement as claimed in any one of the foregoing claims, wherein the quantizer (23) comprises a comparator.

6. A circuit arrangement as claimed in any one of the foregoing claims, wherein the feedback loop (25) comprises a digital-to-analog converter (26).

7. A method for the sigma-delta conversion of an analog input signal into a digital output signal comprising the following method steps:

(a) filtering of the input signal, thereby producing a filtered signal;

5 (b) adding together of the filtered signal and a dither signal, thereby producing a sum signal, what is used as the dither signal being a signal that is available in the circuit but is not specifically generated for this purpose;

(c) quantizing of the sum signal, thereby producing the output signal; and

(d) feeding- back of the output signal to the input signal.

10

8. A method as claimed in claim 7, wherein an output signal obtained by the sigma-delta conversion of a different input signal is used as the dither signal.

9. A method as claimed in claim 7, wherein an input signal to a digital-to-analog

15 converter (5), preferably an FIR digital-to-analog converter, is used as the dither signal.

10. A method as claimed in any of claims 7 to 9, wherein a signal containing wide-band noise, preferably a noise-shaped signal, is used as the dither signal.